USSR

RAFIKOV, S. R., et al, Vysokomolekulyarnyye Soyedineniya 12, No 7, 1970, pp 1608-1613

at ~ 80°C, and 25.5 kcal/mole at higher temperatures. This is interpreted as an indication of diffusion processes becoming more prominent at higher temperatures. Data are presented on the degree of conversion of the iodomethylated groups of the polystyrene as a function of the reaction period, as well as on the degree of completion of the reaction as calculated from an analysis of the P and I contents of the reaction mixture.

2/2

USSR

SHALYUKHIN, Yu. N. UDC 539.3.01

"On Stresses in a Plate With a Molten Insert of Arbitrary Cross Section"

V sb. Kratk. tezisy dokl. k Konf. po povrezhdeniyam i ekspluat. nadezhnosti sudovykh konstruktsiy, 1972 (Brief Subjects of Papers at the Conference of Breakdown and Utilization of the Reliability of Ship Designs, 1972 -- Collection of Works), Vladivostok, 1972, pp 141-144 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V58)

Translation: A method is presented for solving the problem of stresses in an infinite plate with a molten insert of arbitrary cross section by the Sherman method. The effect of the welding deformations is taken into account by the introduction of an equivalent gap along the contour of the opening. 5 ref. B. P. Kishkin.

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--EFFECT OF SOME TECHNOLOGICAL PARAMETERS OF AN OXYGEN CONVERTER MELT ON THE STABILITY OF TAR DOLOMITE MAGNESITE LINING -U-

AUTHOR-(05)-KUZNETSOV, A.F., SHAM, P.I., PASHCHENKO, N.K., BULSHAKOV, V.A., ZELTSER, I.G.

COUNTRY OF INFO--USSR

SOURCE--OGNEUPORY 1970, 35(2), 35-9

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL OXYGEN CONVERSION, SLAG, PIG IRON, CORROSION

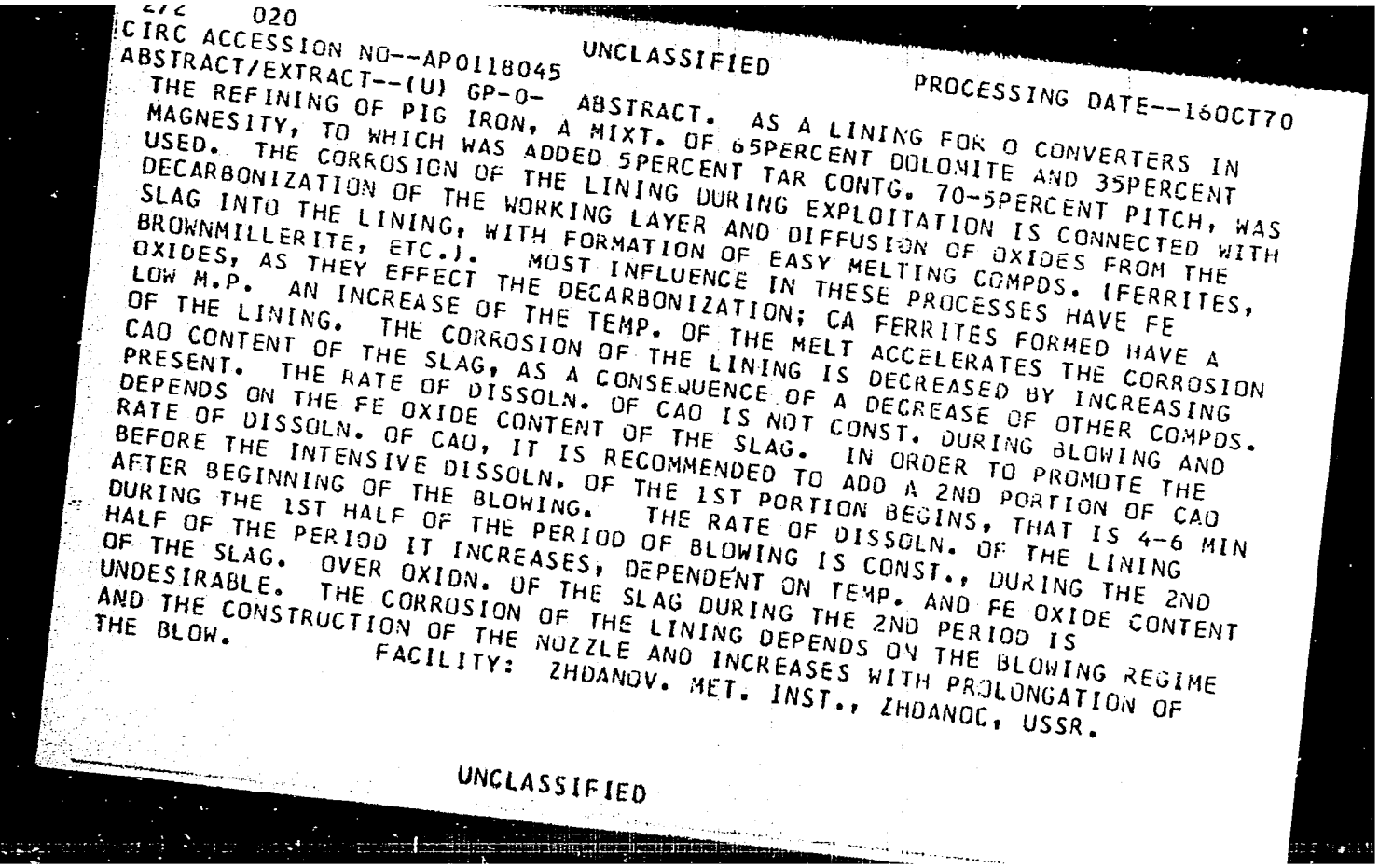
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0873 STEP NO--UR/0131/70/035/002/0035/0039

CIRC ACCESSION NO--AP0118045

UNCLASSIFIED



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UNCLASSIFIED
CIRC ACCESSION NO--AP0118045 PROCESSING DATE--16OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AS A LINING FOR O CONVERTERS IN THE REFINING OF PIG IRON, A MIXT. OF 65PERCENT DOLONITE AND 35PERCENT MAGNESITY, TO WHICH WAS ADDED 5PERCENT TAR CONTG. 70-5PERCENT PITCH, WAS USED. THE CORROSION OF THE LINING DURING EXPLOITATION IS CONNECTED WITH DECARBONIZATION OF THE WORKING LAYER AND DIFFUSION OF OXIDES FROM THE SLAG INTO THE LINING, WITH FORMATION OF EASY MELTING COMPDS. (FERRITES, BROWNMILLERITE, ETC.). MOST INFLUENCE IN THESE PROCESSES HAVE FE OXIDES, AS THEY EFFECT THE DECARBONIZATION; CA FERRITES FORMED HAVE A LOW M.P. AN INCREASE OF THE TEMP. OF THE MELT ACCELERATES THE CORROSION OF THE LINING. THE CORROSION OF THE LINING IS DECREASED BY INCREASING CAO CONTENT OF THE SLAG, AS A CONSEQUENCE OF A DECREASE OF OTHER COMPDS. PRESENT. THE RATE OF DISSOLN. OF CAO IS NOT CONST. DURING BLOWING AND DEPENDS ON THE FE OXIDE CONTENT OF THE SLAG. IN ORDER TO PROMOTE THE RATE OF DISSOLN. OF CAO, IT IS RECOMMENDED TO ADD A 2ND PORTION OF CAO BEFORE THE INTENSIVE DISSOLN. OF THE 1ST PORTION BEGINS, THAT IS 4-6 MIN AFTER BEGINNING OF THE BLOWING. THE RATE OF DISSOLN. OF THE LINING DURING THE 1ST HALF OF THE PERIOD OF BLOWING IS CONST., DURING THE 2ND HALF OF THE PERIOD IT INCREASES, DEPENDENT ON TEMP. AND FE OXIDE CONTENT OF THE SLAG. OVER OXIDN. OF THE SLAG DURING THE 2ND PERIOD IS UNDESIRABLE. THE CORROSION OF THE LINING DEPENDS ON THE BLOWING REGIME AND THE CONSTRUCTION OF THE NOZZLE AND INCREASES WITH PROLONGATION OF THE BLOW.
FACILITY: ZHDANOV. MET. INST., ZHDANOC, USSR.

UNCLASSIFIED

USSR

UDC 669.295:620.187

VARAKINA, L. P., POLYANSKIY, V. M. and SHAMALO, V. V.

"A Method of Producing VT3-1 Titanium Alloy Foil for Electron Microscopy Studies"

Moscow, Zavodskaya laboratoriya, Vol 38, No 4, 1972, pp 462-464

Abstract: Microstructure examinations of metals and alloys by transmission electron microscopes require fine foil of the test material. The study described here deals with methods of preparing the test specimens as well as with structural changes occurring in the material in the process of electrospark cutting. Involved here were thin sections of VT3-1 titanium alloy. Following electrospark cutting, the specimen's surface layer over a depth of 0.2-0.3 mm showed β-phase and TiC formations with crystal lattice periods of 3.25 and 4.28 Å, respectively. Below the 0.2-mm depth, the α-phase crystal lattice periods of the material become constant. This means a thickness requirement of 0.5 mm on electrospark-cut test blanks for making test foil. The VT3-1 alloy for the initial blanks was heat treated under two procedures: 1) hardening from 850°C, holding for 30 min, cooling in water; 2) hardening as above and subsequent aging at 600°C for 4 hrs. (2 illustrations)

1/1

USSR

UDC 620.193.43

PENYAGINA, O. P., OZERYANAYA, I. N., SMIRNOV, M. V., SHIBANOV, B. S., and SHAMANOVA, N. D., Academy of Sciences USSR, Ural Branch, Institute of Electrochemistry

"Passivation of Iron and Nickel in Molten Carbonates"

Moscow, Zashchita Metallov, Vol 8, No 3, May-Jun 72, pp 312-314

Abstract: A study was made of the passivation of NO nickel and Armco iron in carbonate melts. Significant passivation of nickel is observed in the ternary eutectic mixture of lithium, sodium, potassium carbonates at 800°. At 600° there is appreciable inhibition only of the dissolution of electrodes electropolished or working in contact with electronegative titanium. At 800° the phase composition of the film on the electrode changes as a result of the insertion of lithium oxide in the crystal lattice of nickelous oxide (solid solution $Li_2O \cdot NiO$). The corrosion rate and steady-state potentials do not depend on the cation composition of the melt. The influence of the nature of the melt is noted in the anodic polarization of nickel under potentiostatic conditions.

1/2

PENYAGINA, O. P., et al., Zashchita Metallov, Vol 8, No 3, May-Jun 72, pp 312-314

The kinetic characteristics of Armco iron passivation were studied in a eutectic mixture of lithium, sodium, and potassium carbonates (0.43 : 0.32 : 0.25) at 600°. In contrast to nickel, the rate of anodic dissolution of iron at this temperature is high from the very start of polarization. The process is accompanied by intensive covering of the surface of the metal with products of its interaction with ions of the melt, and it reaches a maximum in the region of sufficiently negative potential values and then a sharp transition of the electrode to the passive state is observed. The iron electrodes after the test were coated with a film, X-ray diffraction analysis of which shows the formation of compounds of the $LiFeO_2$ and Fe_3O_4 spinel type on the surface of the iron during anodic polarization. Films with such a structure as a rule possess high protective properties.

2/2

USSR

DMITROVSKAYA, T. I., MASLOVA, L. M., KARAL'NIK, B. V., and SHAMARDIN, V. A., Chair of Infectious Diseases, Alma Ata Medical Institute and Chair of Infectious Diseases, Alma-Ata Institute for the Advanced Training of Physicians, Department of Immunology, Kazakh Institute of Epidemiology and Microbiology

"The Indirect Hemagglutination Reaction in Diagnosing Protracted and Chronic Forms of Salmonellosis"

Alma-Ata, Zdravookhraneniye Kazakhstana, No 11, 1971, pp 21-23

Abstract: Serological studies were made on 137 persons who presented pathological changes in internal organs following salmonellosis. The indirect hemagglutination reaction(IHR) was considered positive when total antibody activity was not lower than 1:200, and the 7S level was not lower than 1:40. Protracted infection was defined as that lasting up to 3 months; chronic, as that lasting over 3 months. The diagnosis for 30 persons was protracted salmonellosis (stomach disorders); 24 showed positive IHR. Chronic salmonellosis (digestive and hepatobiliary disorders) was diagnosed in 72 persons, 50 of whom showed positive IHR. A relationship was established between clinical manifestations of the disease and positive IHR, even in cases of subclinical or latent forms, where the symptoms were absent or vague. A relationship was also found between the severity of the disease in the acute period, severity of clinical manifestations, and degree of subsequent antibody activity. 1/1

UDC 669.15.018.8:621.039.5

USSR

VOTINOV, S. N., SHAMARDIN, V. K., PROKHOROV, V. I.

"Characteristic Features of Stainless Steel Creep after Irradiation"

Radiatsion. fiz. tverd. tela i reaktornoye materialoved. -- V sb. (Radiation Solid State Physics and Reactor Material Science -- collection of works), Moscow, Atomizdat Press, 1970, pp 121-138 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I847)

Translation: The effect of neutron irradiation on the stress-rupture strength, creep, microstructure, and microhardness of Kh18N10T, Kh15N2V2M4B, KhN35V3T, Kh16N15M3B, and Kh16N15M3BR steels was investigated. The samples were irradiated in the SM-2 reactor by fast neutron fluxes of $5 \cdot 10^{19}$-$5 \cdot 10^{22}$ at 50-70° and $2 \cdot 10^{20}$ cm^{-2} at 700°. The neutron flux density was no less than 10^{14} neutrons/cm^2-sec, and the ratio of thermal and fast neutrons was 1 : 10. The stress-rupture strength tests were performed at 630-730°. In the majority of cases the irradiation led to a reduction or even complete disappearance of three creep stages. There are 12 illustrations, 2 tables, and a 19-entry bibliography.
1/1

UDC 669.15.018.295.621.039.5

USSR

BALASHOV, V. D., VOTINOV, S. N., PROKHOROV, Z. I., SHAMARDIN, V. K.

"Change in Strength and Plasticity Characteristics of Iron and Its Alloys With Chromium as a Result of Bombardment"

Radiatsion. Fiz. Tverd. Tela. i Reaktornoye Materialoved. [Solid State Radiation Physics and Reactor Materials Science -- Collection of Works], Moscow, Atomizdat Press, 1970, pp. 94-101. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I811 by O. Pimenova).

Translation: The influence of low-temperature neutron bombardment on the mechanical properties of Armco iron, the alloy Fe-20% Cr, and type Kh13 steel in extension is studied. 6 figs; 8 biblio refs.

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BALASHOV, V. D., et al., Radiatsion. Fiz. Tverd. Tela i Reaktornoye Materialoved., Moscow, Atomizdat Press, 1970, pp 94-101 (from Referatinvyy Zhurnal-Yadernyye Reaktory, No 4, 1971, Abstract No 4.50.141)

noted that whereas in chrome-nickel steels the decrease in ductility following neutron bombardment at high temperatures is sometimes catastrophic, in chrome steels and iron it is not great. 6 figures; 8 biblio. refs.

2/2

Acc. Nr. AP0053454 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UR0366

110704b Vinyl ethers of halo alcohols. V. Synthesis of new functional alkoxyethylenes by nucleophilic substitution of the halogen. Atavin, A. S.; Gusarov, A. V.; Trofimov, B. A.; Shamarina, N. V. (Irkutsk. Inst. Org. Khim., Irkutsk, USSR). Zh. Org. Khim. 1970, 6(2), 228-32 (Russ). The reaction of $H_2C:CHO(CH_2)_nX$ (I) (X is Cl or Br) with KSCN gave 47-65% $H_2C:CHO(CH_2)_nSCN$ (n is 2, 3, or 4). Similarly, I reacted with $AcCH_2CO_2Et$ to give 32.5 and 48.0% $H_2C:CHO(CH_2)_nCHAcCO_2Et$ (n is, resp., 2 or 4). The reaction of I with $Et_2NC(S)SK$ gave the previously unknown $H_2C:CHO(CH_2)_nSC(S)NEt_2$ (n is 2 or 4). NaCN with I gave $H_2C:CHO(CH_2)_nCN$ (n is 3 or 4) and Na_2S_2 with I gave $[H_2C:CHO(CH_2)_nS]_2$. CPJR

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REEL/FRAME
19830479

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USSR

KARPINOS, D. M., KRAVCHENKO, A. A., PILIPOVSKIY, Yu. Ya., TKACHENKO, V. G., SHAMATOV, Yu. M., KHARCHENKO, V. K., Kiev

"Study of Mechanical Characteristics of Hot Pressed Tungsten-Copper Pseudoalloys"

Kiev, Problemy Prochnosti, No. 12, Dec 70, pp. 64-68

Abstract: Studies are made of the mechanical characteristics of hot-pressed tungsten-copper pseudoalloys and their dependence on the density of the tungsten framework containing the lower-melting component and the time of isothermal holding at the pressing temperature. It is demonstrated that the strength, plasticity and impact toughness increase with increasing density of the refractory framework and holding time in the 1900-2200°C temperature interval during pressing. The hardness and strength in compression depend primarily on the density of the framework and the degree of filling of the pores with copper.

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UDC 666.3.022.519

USSR

GROSHEVA, V. M., KARPINOS, L. M., PILIPOVSKIY, YU. L., Candidates of Technical Sciences, GAYOVAYA, T. I., SHAMATOV, YU. M., Institute of Problems of Materials Science, Academy of Sciences, Ukrainian SSR

"Impact-Resistant Ceramic Materials"

Moscow, Steklo i Keramika, No 11, Nov 70, pp 36-37

Abstract: The authors have conducted a project on increasing the impact strength of ceramic material on the basis of boron nitride by the method of reinforcement with filamentary monocrystals of mullite ($3Al_2O_3 \cdot 2SiO_2$), obtained in the Institute of Research on the Problems of Materials, Academy of Sciences, Ukrainian SSR. The reinforcement method developed by them makes it possible to obtain products on the basis of boron nitride, which possess high impact strength. The thermal stability of the products permits their use as insulating materials in high-temperature units with cyclical heating. The chemical inertness and the high impact strength permits the use of the obtained

1/2

Refractory Materials

UDC 549.2

USSR

GROSHEVA, V. M., KARPINOS, D. M., PILIPOVSKIY, Yu. L., PANASEVICH, V. M., GAYOVA, T. I., AND SHAMATOV, Yu. M., Institute of Problems of Material Science, Academy of Sciences Ukr SSR

"Refractory Material on an Aluminum Nitride Base"

Moscow, Ogneupory, No 5, May 71, pp 54-56

Abstract: An investigation was made of the reinforcement of aluminum nitride by fiberlike single crystals of mullite ($3Al_2O_3 \cdot 2SiO_2$) synthesized at the Institute of Problems of Material Science, Academy of Sciences Ukr SSR. The refractory material is characterized by chemical inertness and high resistance to thermal shock. It is recommended for lining of high-temperature installations operating in aggressive media, in the presence of abrupt thermal cyclings, and by high mechanical loadings. Three figures, two tables, six bibliographic references.

1/1

Waveguides

UDC 621.372.827:621.317.343.2

USSR

KOSHELEV, G. P., KORCHEMKIN, Yu. B., and SHAMAYEV, S. I.

"Determination of Critical Wave-Length Constant and Wave Resistance of Coaxial Line Having an Inner Conductor of Cruciform Section"

Moscow, Antenny, No 13, 1971, pp 18-27

Abstract: The recent tendency is to use waveguides of complex cross-section. Such waveguides are smaller, lighter and suitable for a wider frequency band than the waveguides of simple (rectangular, round) cross-section).

This article investigates the waveguide having a cylindrical outer conductor and an inner conductor consisting of a rod provided with four longitudinal ribs.

Graphs are presented showing the critical wave-length constants (solid lines) and the wave resistance (dashed lines) for various proportions of the subject waveguide.

Experimental results agree with the theoretical ones essentially within the experimental errors.

1/1

Rare Earth Metals

S

UDC (546.831'183+546.832'183):541.6:541.8:543.52

USSR

GARBAUSKAS, G. K., and SHAMAYEV, V. I.

"Determination of Composition and Solubility of Phosphates of Zirconium and Hafnium by Radiochemistry"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 15, No 1, 1970, pp 33-37

Abstract: A study was made of the composition of phosphate precipitates as a function of an equilibrium concentration of H_2SO_4 in solution. Experiments to determine the ratio of phosphorus to hafnium in the hafnium phosphate molecule were conducted both with pure sulfate solution and in the presence of a complexating agent, 0.1 mole citric acid. The study was conducted with labelled hafnium, where the phosphate ion was taken in substoichiometric amount with respect to Hf(IV). It was assumed that all the substoichiometric amount of phosphate reacts with labelled hafnium and enters into the precipitate. The amount of Hf(IV) in the precipitate was calculated from the formula (in moles):

$$g_{Hf(IV)}^{oc} = m_{Hf(IV)} (1 - alpha)$$

where $m_{Hf(IV)}$ = initial amount of hafnium in solution (moles); alpha = A_{fin}/A_{ini},

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USSR

GARBAUSKAS, G, K., and SHAMAYEV, V. I., Zhurnal Neorganicheskoy Khimii, Vol 15, No 1, 1970, pp 33-37

A_{fin} = activity of filtrate after separation from precipitate (pulses/minute); A_{ini} = initial activity of solution (pulses/min). It was established that the composition of phosphates of zirconium and hafnium vary with change in H_2SO_4 concentration in solution, and the solubility of zirconium phosphate is greater than that of hafnium phosphate in H_2SO_4 solutions of different concentrations.

Acc. Nr: AP0034106 Abstracting Service: CHEMICAL ABST. 4-76 Ref. Code: UR0078

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71209x Determination of the composition and solubility of zirconium and hafnium phosphates by a radiochemical method. Carbauskas, G.; Shapiro, V. I. (USSR). *Zh. Neorg. Khim.* 1970, 15(1), 33-7 (Russ). Compn. and soly. of Zr and Hf phosphates was studied in a wide range of H_2SO_4 concn. in the presence or without 0.1 *M* citric acid (I). Compn. of Zr and Hf phosphates changed with H_2SO_4 concn. Soly. of Zr and Hf in various H_2SO_4 concns. are given graphically. The values of *X* coeffi. (*X* = *m* of $[PO_4]^{3-}$ in soln./*m* of Zr^{4+} in ppt; *m* = no. of moles) for changing H_2SO_4 concn. with and without 0.1 *M* I are tabulated. HMJR

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REEL/FRAME
19710749

USSR UDC: 681.327

SHAMAYEV, Yu. M., OGNEV, I. V.

"Analysis of the Operating Capacity of Immediate-Access Core Stores"

Tr. Mosk. energ. in-ta (Works of Moscow Power Engineering Institute), 1972, vyp. 121, pp 101-105 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan 73, abstract No 1B386 by K. Yu.)

Translation: A method is considered for calculating the region of operational stability of an immediate-access memory. This region is a generalized characteristic of the parametric reliability of an immediate-access core store and can be used to predict the behavior of an immediate-access memory under various operating conditions. Examples are given of calculation of the region of operational stability and calculation of the optimum value of the exciting currents. The temperature state of the immediate-access memory is analyzed. Three illustrations.

1/1

UDC: 681.327

USSR

SHAMAYEV, Yu. M., OGNEV, I. V.

"Requirements for the Parameters of Memory Cores"

Moscow, Magnit. elementy avtomatiki i vychisl. tekhn. XIV Vses. soveshch., 1972, Ref. dokl. (Magnetic Elements in Automation and Computer Technology. Fourteenth All-Union Conference, 1972. Abstracts of Papers), 1972, pp 93-94 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan 73, abstract No 1B385 by B. K.)

Translation: The authors analyze the causes of unstable operation of ferrite core memory matrices inspected and sorted in accordance with primary magnetic parameters. Relations are found for evaluating the stability of conditions of storing and recording information in memory matrices of a 2.5D system with a change in temperature and with regard to the geometry and magnetic parameters of cores. It is shown that the stability of matrix conditions falls with an increase in the limits of the spread in coercive force of the cores. On this basis it is concluded that additional inspection is required for this parameter in classifying cores.

1/1

1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--INFLUENCE OF EXTERNAL MAGNETIC FIELD ON STATIC AND DYNAMIC CHARACTERISTICS OF MAGNETIC CORES WITH RECTANGULAR HYSTERESIS LOOP -U-

AUTHOR-(03)-MIKHALYCHEVA, A.P., PIROGOV, A.I., SHAMAYEV, YU.M.

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA I TELEMEKHANIKA, 1970, NR 6, PP 149-155

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAGNETIC CORE, EXTERNAL MAGNETIC FIELD, HYSTERESIS LOOP, SATURATION MAGNETIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1210 STEP NO--UR/0103/70/000/006/0149/0155

CIRC ACCESSION NO--AP0124864

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--30OCT70

2/2 018
CIRC ACCESSION NO--AP0124864
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERE ARE PRESENTED THE THEORETICAL AND EXPERIMENTAL RESULTS OF THE INVESTIGATION OF THE EXTERNAL MAGNETIC FIELD INFLUENCE ON THE STATIC AND DYNAMIC CHARACTERISTICS OF THE MAGNETIC CORE WITH A RECTANGULAR HYSTERESIS LOOP PREVIOUSLY MAGNETIZED TO SATIETY.

UNCLASSIFIED

UDC 616.36-092.9-085.849.19

USSR

LAGUNOVA, I. G., SAVCHENKO, Ye. D., GARVEY, N. N., LIKHOVETSKAYA, L. L., SHAMAYEVA, G. G., KLIMOV, A. D., and MOGUTOV, V. I., Moscow, Scientific Research Institute of Roentgenology and Radiology, Ministry of Health RSFSR

"The Effects of Neodymium Laser Irradiation on the Rat Liver"

Leningrad, Voprosy Onkologii, Vol 18, No 1, 1972, pp 91-94

Abstract: Single irradiation of a 2 by 5 mm abdominal area over the rat liver with pulsed neodymium laser rays with initial energy of 100-200 joules and incident density of 1000-4000 joules/cm^2 causes local injury to the liver tissue, ranging from degenerative changes to complete necrosis. Destruction of blood vessels occurs in the central zone and paralytic vasodilation with edema in the peripheral zone. Proliferation of fibroblasts begins after 5 days, and a capsule is formed around the injured area. Connective tissue cells and bile capillaries grow toward the necrotic center along with blood vessels. Eventually, hepatocytes, lymphocytes, and macrophages appear. On the 20th day, the necrotic area is filled with patches of new hepatic parenchyma. After stronger irradiation (3000-4000 joules/cm^2), the injury is more severe and recovery slower.

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USSR

UDC 621.38:61

SHAMAYEVA, G.G., CHEKHLOV, V.I., LIKHOVETSKAYA, L.L.

"To The Problem Of The Precision Of Definition Of The Energy Density Of Laser Emission During Irradiation Of Experimental Animals"

V sb. Ispol'z. optich. kvant. generatorov v sovrem. tekhn. i med. Ch.2-3 (Use Of Lasers In Contemporary Technology And Medicine. Parts 2-3--Collection Of Works), Leningrad, 1971, pp 89-90 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2A506)

Translation: The principal factors are considered which influence the precision of definition of the energy density during irradiation, among them the precision of definition of the object distance, the effect of the focal distance of the optical system, and the effect of the curvature of the surface irradiation. Optimum geometrical conditions of irradiation are selected for an energy density in the range of 1,000--10,000 Joule/cm^2. T.V.

1/1

UNCLASSIFIED PROCESSING DATE--13NOV70

1/2 028

TITLE--ELECTROOPTICAL PROPERTIES OF CUBIC ZINC SULFIDE CRYSTALS GROWN BY A HYDROTHERMAL METHOD -U-

AUTHOR-(05)-SHAMBUROV, V.A., KUZNETSOV, V.A., LOBACHEV, A.N., KHARITONOVA, I.V., SOSHNIKOV, V.G.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 302-7

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTROOPTIC EFFECT, CRYSTALLIZATION, ZINC SULFIDE, CRYSTAL GROWING, LIGHT TRANSMISSION, CRYSTAL ORIENTATION, LIGHT MODULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1478 STEP NO--UR/0070/70/015/002/0302/0307

CIRC ACCESSION NO--AP0118467

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 028

CIRC ACCESSION NO--AP0118467

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CRYSTN. OF CUBIC ZNS BY THE HYDROTHERMAL METHOD WAS STUDIED UNDER THE CONDITIONS USED BY R. LAUDISE, ET AL. (1965), AND THE SPECTRAL DEPENDENCE WAS STUDIED FOR THE LIGHT TRANSMISSION, THE HALF WAVE POTENTIAL, AND ELECTROOPTICAL COEFFS. OF THE CRYSTALS. THE DEVIATIONS WERE DETD. FROM OPTICAL ISOTROPY. CRYSTALS PREPD. IN THIS WAY CAN BE ORIENTED AS REQUIRED IN THE FORM OF RECTANGULAR PARALLELPIPEDS OF SUFFICIENT SIZE TO CARRY OUT ELECTROOPTICAL STUDIES. THE CRYSTALS THAT WERE OBTAINED ARE SUITABLE FOR PRACTICAL USE IN LIGHT MODULATION OVER THE RANGE OF WAVELENGTHS OF 0.4-13 MU. FACILITY: INST. KRISTALLOGR., MOSCOW, USSR.

UNCLASSIFIED

1/2 006 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ELECTRO OPTICAL GATES FOR LASER PULSE GENERATION -U-

AUTHOR--SHAMBUROV, V.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, VOL 15, NO 3, 1970, PP 512-522

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--QUARTZ, SWISHITCHED PULSE LASER, LASTER OPTICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1149 STEP NO--UR/0109/70/015/003/0512/0522

CIRC ACCESSION NO--AP0112253

UNCLASSIFIED

2/2 006 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112253

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A GENERAL INFORMATION ARTICLE ON THE USE OF ELECTRO OPTICAL GATES FOR MODULATING THE Q OF A SOLID STATE PULSED LASER RESONATOR. THE PURPOSE OF SUCH MODULATORS IS TO SWITCH THE Q OF THE RESONATOR FROM A VERY LOW OR ZERO VALUE TO AN EXTREMELY HIGH ONE FOR A PERIOD OF THE ORDER OF 5-15 NANOSECONDS FOR GENERATION OF THE SO CALLED GIANT MONOPULSE LASER RADIATION. TWO TYPES OF SOLID STATE GATE ARE DISCUSSED: A CLOSED GATE, WITH A Q CLOSE TO ZERO; AN OPEN GATE WITH MAXIMUM Q. MANY NEW TYPES OF SUCH SOLID STATE GATES ARE DISCUSSED, WITH EMPHASIS ON CRYSTALS OF QUARTZ AND KDP. EXPERIMENTS CONDUCTED BY THE AUTHOR IN COLLABORATION WITH L. D. KHAZOV SHOWED THAT THE OPTICAL CONTACT OF A KDP CRYSTAL WITH GLASS CAN WITHSTAND GIANT PULSES OF AS MUCH AS 100 MEGAWATTS OF POWER. OTHER EXPERIMENTS PERFORMED IN THE PHYSICAL INSITITUE OF THE USSR ACADEMY OF SCIENCES ON ABSTRACT: CRYSTAL ELEMENTS IN SYSTEMS USING HALF WAVE SOLID STATE GATES ARE DISCUSSED. IN CONCLUDING, THE AUTHOR EXPRESSES HIS GRATITUDE TO V. Z. OBRUCHNIKOVA, I. V. KHARITONOVA, AND M. N. KAPOSHINA FOR THEIR ASSISTANCE, AND TO N. G. BASOV, V. M. OVCHINNIKOV, L. D. KHAZOV, V. I. GOSTEV, AND A. M. PROKHOROV FOR THEIR DISCUSSION OF THE ARTICLE AND FOR THEIR ADVICE.

UNCLASSIFIED

Lasers and

USSR S UDC: 621.373.029.67

ARKAD'YEV, D. I., KAPACH, Yu. E., KOZLOVSKIY, Ye. N., OVCHINNIKOV, V. M., and SHAMEUROV, V. A.

"Monopulse Ruby and Neodymium-Glass Laser"

Moscow, Radiotekhnika i Elektronika, Vol. 15, No. 3, 1970, pp 523-528

Abstract: This article describes a laser designed by the authors to correct defects in an earlier laser developed by some of the men named above and described in the Russian Journal of Applied Spectroscopy ("Laser with Neodymium Glass Electro-Optical Q Modulator," 1967, Vol. 7, No. 2, p. 269). This earlier laser used a half-wave electro-optical gate with a KDP crystal between crossed polarized prisms of Iceland spar. The presence of a second polarizer in the laser introduced additional absorption and dispersion losses in the Iceland spar, and the half-wave voltage for controlling the gate for neodymium glass was as much as 18-20 kv. The new laser uses ruby and neodymium glass

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USSR

ARKAD'YEV, D. I., et al, Radiotekhnika i Elektronika, Vol 15, No 3, 1970, pp 523-528

Abstract:

as well as a quarter-wave electro-optical gate. A diagram of the new type of laser is shown. It consists of a special prism for full internal reflection, the electro-optical crystal polarized by a Glan prism, the ruby with sapphire ends, and stopping plates. Curves for the device giving the output energy as a function of the delay in application of the voltage to the gate for the ruby and the neodymium glass are shown; there are also curves for the output energy as a function of the voltage applied to the gate and of the pumping energy. The authors express their gratitude to A. M. Prokhorov for his valuable comments on the article..

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USSR

UDC 621.375.029.67

SHAMBUROV, V. A.

"Electro-Optical Gates for Laser Pulse Generation"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 3, 1970, pp 512-522

Abstract: A general information article on the use of electro-optical gates for modulating the Q of a solid-state pulsed laser resonator. The purpose of such modulators is to switch the Q of the resonator from a very low or zero value to an extremely high one for a period of the order of 5-15 nanoseconds for generation of the so-called giant monopulse laser radiation. Two types of solid-state gate are discussed: a closed gate, with a Q close to zero; an open gate with maximum Q. Many new types of such solid-state gates are discussed, with emphasis on crystals of quartz and KDP. Experiments conducted by the author in collaboration with L. D. Khazov showed that the optical contact of a KDP crystal with glass can withstand giant pulses of as much as 100 megawatts of power. Other experiments performed in the Physical Institute of the USSR Academy of Sciences on

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USSR

SHAMBUROV, V. A., Radiotekhnika i Elektronika, Vol 15, No 3, 1970, pp 512-522

Abstract: crystal elements in systems using half-wave solid-state gates are discussed. In concluding, the author expresses his gratitude to V. Z. Obruchnikova, I. V. Kharitonova, and M. N. Kaposhina for their assistance, and to N. G. Basov, V. M. Ovchinnikov, L. D. Khazov, V. I. Gostev, and A. M. Prokhorov for their discussion of the article and for their advice.

2/2

USSR

Petroleum Processing Technology

UDC 62-634:534.321.9

BOGOYAVLENSKIY, A. F., SHAMES, S. I., and ABRAMOVICH, L. K., Kazan Aviation Institute, Kazan', Ministry of Higher and Secondary Specialized Education RSFSR

"Changes in the Composition of Kerosene TS-1 Under the Action of Ultrasound"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 43, No 1, Jan 70, pp 92-96

Abstract: Kerosene TS-1 (GOST 10227-62) was subjected to the action of ultrasonic waves at a frequency of 20 kc and temperatures of 10-35°. While the calorific value, flash point, density, and content of aromatic hydrocarbons of the fuel did not show significant changes, the degree of unsaturation of the kerosene hydrocarbons, as indicated by the iodine number, could be increased within wide limits by the treatment. The I_2 number increased with an increasing power density of the ultrasound. Irrespective of the power density applied and the temperature, the maximum increase in the I_2 number was obtained on treatment for 10 min; treatment for a greater length of time did not result in a further significant increase. The degree of unsaturation produced increased with decreasing temperatures of

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USSR

BOGOYAVLENSKIY, A. F., et al, Zhurnal Prikladnoy Khimii, Vol 43, No 1, Jan 70, pp 92-96

treatment. On treatment of the kerosene for 15-60 min at temperatures of 20-35° and power densities of 94-156 W/l., the I_2 number that was raised by the treatment decreased to only an insignificant extent within 6 hrs and then remained constant for 2 days - i.e., the chemical changes produced in the hydrocarbons by ultrasound were stable.

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USSR

UDC: 621.375.7.029.7:621.319.9

CHERPAK, N. T. and SHAMFAROV, Ya. L.

"Protection Against Quantum Amplifier Saturation by the Pulse Modulation Pumping Method"

Moscow, Radiotekhnika i elektronika, No 8, 1972, pp 1628-1631

Abstract: The essence of the method for protecting quantum paramagnetic amplifiers from saturation by test pulses in pulse radio relay communication is given in an earlier paper by the second of the authors named above, published in the same journal (11, 13, 1968, p 2019). The function of the present paper is to show that the transient process of steadying the inversion coefficient can be fully or at least substantially eliminated in the amplifier itself by varying the initial value of the coefficient. A possible method of realizing this variation, by regulating the duration of the pauses in the amplifier operation, is examined. The results of an experimental study of the repeated inclusion of pumping as a method of eliminating slow transient processes are presented, and an oscillogram of these processes in a ruby amplifier is reproduced. A description of the experimental apparatus is given

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UDC: 621.375.7.029.7:621.316.9

CHERPAK, N. T., et al, Radiotekhnika i elektronika, No 8, 1972, pp 1628-1631

in another paper published in this same journal (Ya. L. Shamfarov et al, 9, 14, 1969, p 1656).

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USSR

UDC: 621.375.8

SMIRNOVA, T. A., CHERPAK, N. T., and SHAMFAROV, Ya. L.

"Special Case of UHF Ruby Quantum Amplification"

Gor'kiy, Izvestiya VUZ--Radiofizika, No 10, 1972, pp 1583-1584

Abstract: This brief communication reports the experimental observation of simultaneous inversion of the 1-2 and 3-4 level populations in ruby at a wavelength of approximately 4 cm. The quantum paramagnetic amplifier used in the experiments had an amplification factor of G = 20 dB and a band width of Δf = 1.5 MHz, and a resonator completely filled with dielectric. The pumping wavelength was 1.5 cm and the magnetic field intensity H = 1.7 kOe. The possibility of obtaining the population inversion in the Zeeman levels of the 1-2 and 3-4 transitions by the use of a pumping frequency coinciding with the 1-4 transition frequency had been predicted in an earlier paper (N. B. Karlov, et al, Kvantovyye usiliteli -- Quantum Amplifiers -- Institut nauchnoy informatsii AN SSSR, Itogi nauki, seriya Fizika, 1966).

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Miscellaneous

USSR

SHAMGUNOVA, M. D.

UDC: 534.24

"Reflection of Cylindrical Waves in an Elastic Space From a Flat Free Boundary"

Frunze, IAN Kirgizskoy SSR, No 3, May/Jun 71, pp 31-38

Abstract: The author studies the dynamics of a cylindrical explosion which takes place at a considerable depth beneath the surface of an elastic half-space. It is assumed that the medium is isotropic, elastic, and conforms to Hooke's law. The elastic cylindrical waves undergo mirror reflection when they reach the flat free surface bounding the half-space. The completion of the half-space is imaginary and the center of the reflected circle is located in the complementary half-space. Polar coordinates are introduced, the pole being located at the center of the reflected circle, and the polar axis being directed along the line joining the center of the reflected circle to the center of the explosion. The equations of motion are written in this coordinate system. The problem is reduced to solution of an algebraic system of four equations in two unknowns. Two figures, bibliography of four titles.

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USSR

UDC 621.317.361

IRTEGOV, YU. N., ISKANDAROV, F., PETRAKOVA, V. N., PURCHENOV, V. P., SHAMIN, G. F., and ZYKOV, A. A.

"A Device for Determining and Recording the Spectral Characteristics of Complex Signals"

USSR Author's Certificate No 363930 kl G 01 r 23/18, filed 20 Jan 71, published 7 Mar 73 (from RZh Avtometrika Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 73, abstract No 11 A437P)

Translation: A device is proposed for determining and recording the spectral characteristics of complex signals, containing an input apparatus, a group of band-pass filters, a filter interrogation unit, a recording unit with electrodes, and a paper tape transport unit.

To improve the accuracy, the output of the filter interrogation unit is connected through an analog-code converter and recirculator in series, one of the inputs of which is connected to the control unit; the amplitude gradation decoder is connected to the inputs of an arbitrary symbol synthesizer.

In this approach, the control inputs of the synthesizer are connected to the outputs of a vertical symbol scanning unit. The second input of this unit is

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IRTEGOV, YU. N., et al., USSR Author's Certificate No 363930 kl G 01 r 23/18

supplied with a signal from a cycle pulse generator. The control inputs of the synthesizer are also connected to the outputs of a horizontal symbol scanning unit, the input of which is connected through an electrode counter (whose input is supplied with a signal from the cycle pulse generator) to the inputs of the control unit. The control inputs of the synthesizer are also connected in parallel through the inputs of an "AND" gate to the decoder of the addresses of electrodes connected to the recording unit. One illustration.

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USSR

UDC: 621.376.5

ROGOV, Yu. M. and SHAMINA, G. P.

"Operating Characteristics of Several High-Powered Thyratron Modulators on the Total Load"

Elektron. tekhnika. Nauchno-tekhn. sb. Gazorazryadn. pribory (Electronic Engineering, Scientific-Technical Collection, Gas Discharge Devices) 1970, No. 3(19), pp 54-60 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D424)

Translation: The circuit of a high-powered thyratron modulator for obtaining groups of pulses of varying duration with lessening time intervals between them is examined. An analysis is made of the effect of the modulator thyratrons on each other; the processes in the thyratron grid and plate circuits are considered. A grid circuit design is recommended. Six illustrations, bibliography of three.

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SHAMIS, A. L.

29 Oct 71

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FPD:CYBERNETICS

99. USSR

SHAMIS, A. L.

UDC 611-018.82 : 519.924519.95

SO: FOREIGN PRESS DIGEST 29 OCT. 1971

"A Model of a Neuronal Network With Controlled, Discharge-Type, Autorhythmic Activity"

Kiberneticheskiye Aspekty v Izuchenii Raboty Mozga (Cybernetic Aspects of the Study of the Brain's Functioning), Moscow, Nauka Publishing House, 1970, pp 230-236

Abstract: A model constructed on a digital computer is described. The model is one of the possible variants for obtaining the regimes of controlled, discharge-type, autorhythmic activity with the help of a device made from simple threshold "neural" elements. The rhythm of the model and its changes during "afferent" actions is determined by a scheme of reciprocal relations between groups of neurons and the change in the excitability of the neurons depending on the intensity of firings. The frequency of the model's discharge-type rhythmic operation changes not only as a function of the intensity of "afferestation," but also as a function of the speed with which the excitability (fatigability) of the "neurons" is reduced.

Analogies with the functioning of the neurons of the respiratory center are presented which do not claim to be complete.

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1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--RESERVE CARBOHYDRATES OF YEASTS AS SUPPLEMENTAL CARBON RESOURCES IN PROTEIN BIOSYNTHESIS -U-

AUTHOR-(02)-SHAMIS, D.L., SAUBENOVA, M.G.

COUNTRY OF INFO--USSR

SOURCE--VESTN. AKAD. NAUK KAZ. SSR 1970, 26(2), 69-70

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARBOHYDRATE, YEAST, PROTEIN, BIOSYNTHESIS, GLYCOGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0451 STEP NO--UR/0031/70/026/002/0069/0070

CIRC ACCESSION NO--AP0117687

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0117687

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CANDIDA TROPICALIS WITH ADDED N IN THE ABSENCE OF EXOGENOUS CARBOHYDRATES SHOWED INCREASED N CONTENT. IN ALL CASES, AN INCREASE OF CELL N CONTENT WAS ASSOCD. WITH MARKED REDN. OF GLYCOGEN STORAGE. IN SUCH YEAST, THE SYNTHESIS OF N CONTG. COMPDS. OCCURS AT THE EXPENSE OF THE ENDOGENOUS C SOURCE. YEAST CULTIVATED WITHOUT ADDNL. N HAD A LOWER N CONTENT, AND A HIGHER GLYCOGEN LEVEL.

UNCLASSIFIED

AR0000734 (c) BIOLOGICAL ABSTRACTS 10/69 UR 3015

105703. SHAMIS, D. L., and O. L. M. PUZYREVSKAYA. Usloviya adsorbtsii [illegible]drozhzhami ionov PO_4^{3-}. [Conditions for the absorption of PO_4^{3-} ions by yeasts.] TR INST MIKROBIOL VIRUSOL AKAD NAUK KAZ SSR 11: 34-39. 1968. Translanted from REF ZH BIOL, 1969, No. 2B133.--Preliminary data are given on the absorption of PO_4^{3-} ions, the 1st stage in the intake of P into the yeast cell. For the normal course of the absorption of PO_4^{3-} ions the isoelectric point was 3$, at a pH of 4-4.5. Absorption of the ions to a significant degree depended on the concentration of the PO_4^{3-} ions and the number of yeast cells in the medium. The presence of other ions in the solution (e.g. the cation Ca^{2+}) also altered the degree of P absorption by the yeasts. The degree of assimilation of PO_4^{3-} ions by the yeast cells depended on the concentration of P in the medium. There was an optimum for this concentration at which P was completely utilized. In the opposite case the cell utilized the optimal amount of P necessary for it, with the excess amount remaining in the medium.

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SHAMIS, M.M.

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Radar/Wave Propagation

PROCEDURE AND APPARATUS FOR MEASURING THE ATTENUATION OF RADAR RADIATION IN CLOUDS AND PRECIPITATION

[Article by H. T. Abshayev, Yu. A. Dadali, M. M. Shamis; Leningrad, Vysokogornyy Geofizicheskiy Institut, Trudy, No 20, Aktivnyye Vozdeystviya na Gradovyye Protsessy, Russian, 1972, pp 114-126]

In the last decade more and more attention has been given to quantitative measurements in radar studies of atmospheric processes. The advantages of radar measurements with respect to operativeness and volume of information, the extended nature of the space covered and the possibility of measurements at any time of the year or day in any weather have led to the broad application of radar engineering for measuring precipitation, the microstructure and water and water content of clouds, hail and thunderstorm indications, wind observations, and so on. The primary information is obtained by interpretation of such characteristics as the intensity and the Doppler frequency shift of the echo.

The very close relation of the cloud and precipitation parameters to the attenuation of the microwave radiation in them could not until recently be efficiently used as a result of the complexity and lack of operativeness of measuring the attenuation characteristics (the total attenuation and the attenuation factor). The operative measurement of these characteristics would permit a significant increase in effectiveness of quantitative measurements of the cloud and precipitation parameters. For example, when studying precipitation, as a result of the impossibility of measuring the distribution of the attenuation with respect to area and in space, usually the relations of the precipitation characteristics to the radar reflectivity are used although there is a more unique relation of the integral characteristics of the precipitation (water content, intensity) to the attenuation factor of the microradiowave radiation.

This paper is devoted to finding the procedure and the apparatus for automating the measurements of the attenuation factor and complete attenuation and their distribution in the precipitation and cloud zones.

USSR

SHAMIYEV, F. G.

UDC 539.374

"On the Optimal Designing of Plates With a Sharp Inhomogeneity"

V sb. Mekh. deformir. tverdykh tel (Mechanics of the Deformation of Solids -- Collection of Works), Baku, "Elm". 1970, pp 107-112 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9V454)

Translation: The problem of the optimal design in terms of the criterion of minimum volume for axisymmetrically loaded circular plates is considered. The plates consist of two identical external ideally plastic layers of variable (optimized) thickness h and a filler of constant thickness H. The yield points for the inner circular shell on the annular periphery zone of the plate are different. Solutions are obtained on the basis of the optimality criterion of Drucker and Schill under the condition of Trask fluidity for a uniformly loaded plate freely supported or restrained along a contour. V. I. Rozenblyum.

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1/2 014 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--CHANGES IN ATPASE ACTIVITY IN ATHEROSCLEROTIC RABBITS -U-

AUTHOR-(05)-ASATIANI, V.S., KARCHKHADZE, R.G., SHAMKULASHVILI, G.G., DZHUGELI, I.S., SILAGADZE, L.S.

COUNTRY OF INFO--USSR

SOURCE--SOOBSHCH. AKAD. NAUK GRUZ. SSR 1970, 57(2), 469-72

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ATHEROSCLEROSIS, RABBIT, MITOCHONDRION, ENZYME ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0212 STEP NO--UR/0251/70/057/002/0469/0472

CIRC ACCESSION NO--APO135708

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0135708

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN RABBITS THE HIGHEST ATPASE ACTIVITY IS IN THE MITOCHONDRIA OF CARDIAC MUSCLE. ON COMPARING VARIOUS IONS (K, NA, MG, CA), ONLY MG ACTS AS AN ACTIVATOR OF ATPASE IN HEART, BRAIN, AND LIVER. IN ATHEROSCLEROTIC RABBITS, THE ATPASE ACTIVITY IS LOWER IN MITOCHONDRIA BUT HIGHER IN THE SUPERNATANT FRACTION.

FACILITY: TBILIS. GOS. MED. INST., TBILISI, USSR.

UNCLASSIFIED

Acc. Nr: AP0049941 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR0456

104231d Photodissociation of alcohols adsorbed on γ-irradiated silica gel. Shamonina, N. F.; Kotov, A. G.; Pshezhetskii, S. Ya. (Fiz.-Khim. Inst. im. Karpova, Moscow, USSR). *Khim. Vys. Energ.* 1970, 4(1), 43-8 (Russ). The EPR spectra are shown and analyzed for γ-irradiated silica gel (sp. surface 400 m^2/g) washed with Et orthosilicate, dried, and heated at 400° for 6 hr at 10^{-5} torr with adsorbed EtOH, MeOH, or PrOH under the effect of red light. The photodissocn. of the alcs. takes place at surface paramagnetic centers, formed during irradn. of the silica gel. The relation is shown between Et and Me radicals and dose, and increases up to 1.0 megarads before leveling off. A diagrammatic sketch is shown relating the energies of recombination of stabilized electrons and "holes."

B. J. Ikeler

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REEL/FRAME 19801877

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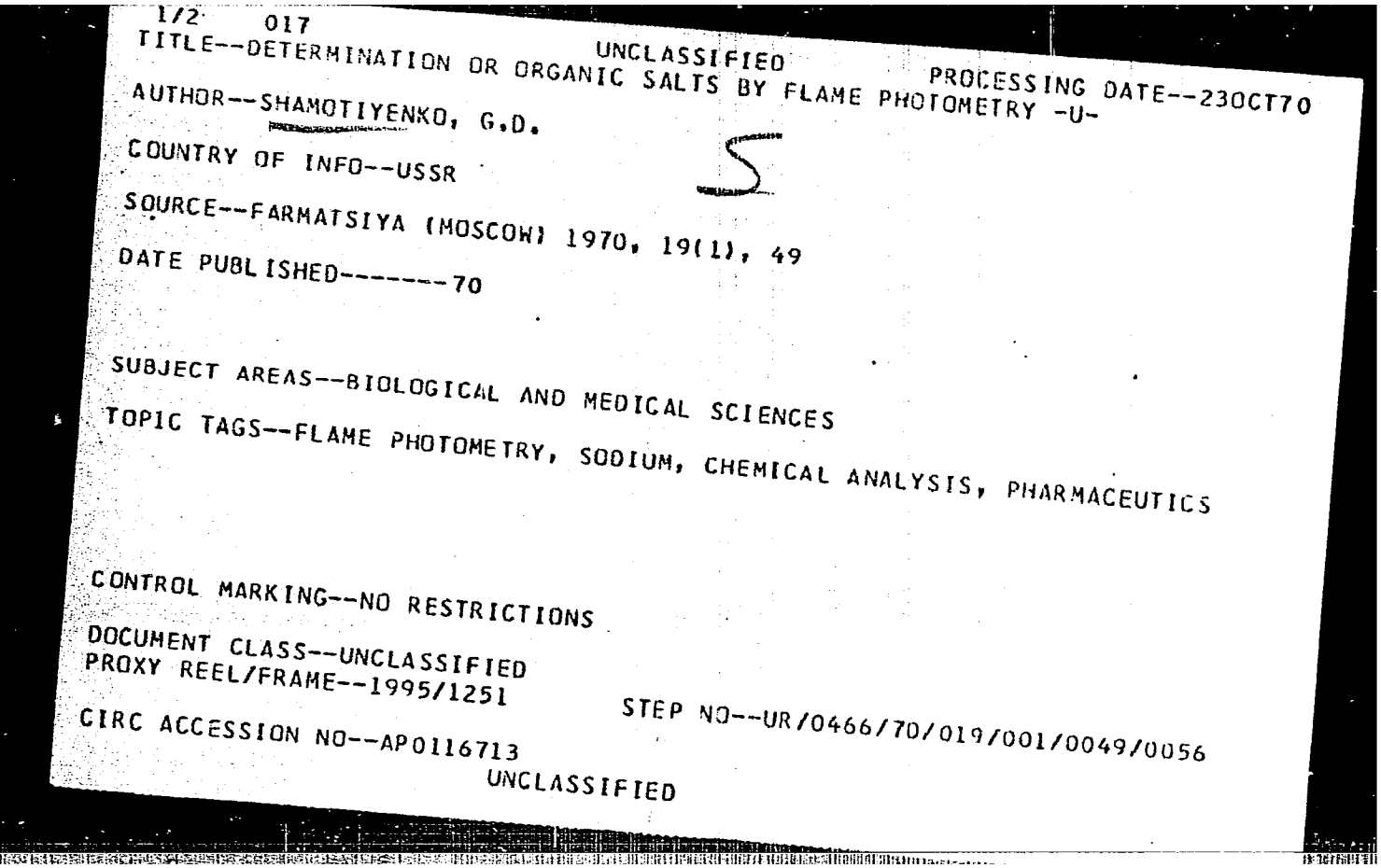

1/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DETERMINATION OR ORGANIC SALTS BY FLAME PHOTOMETRY -U-

AUTHOR--SHAMOTIYENKO, G.D.

COUNTRY OF INFO--USSR

SOURCE--FARMATSIYA (MOSCOW) 1970, 19(1), 49

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FLAME PHOTOMETRY, SODIUM, CHEMICAL ANALYSIS, PHARMACEUTICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1251

STEP NO--UR/0466/70/019/001/0049/0056

CIRC ACCESSION NO--AP0116713

UNCLASSIFIED

2/2 017 UNCLASSIFIED

CIRC ACCESSION NO--AP0116713 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRIIOTRAST, BILIGNOST, HEXANAL, NA P,AMINOSALICYLATE, AND NA NUCLEINATE (IN PURE FORM) WERE DETD. IN PHARMACEUTICAL PREPNS. ON THE BASIS OF ESTN. THE CONTENT OF NA BY FLAME PHOTOMETRY. PRIOR THE PHOTOMETRY, THE ORG. SALT WAS DISSOLVED IN WATER, PPTD. WITH 2N HCL, AND THE PPT. FILTERED. RESULTS WERE EVALUATED FROM A CALIBRATION GRAPH OF NACL MADE IN THE RANGE OF 4.5-8.5 MG PERCENT. THE PRESENCE OF LESS THAN 30MG PERCENT OF SUGAR, THIAMINE BROMIDE, CA GLUCONATE, PHYTIN, ISONIAZID, EPHEDRINE HCL, EUPHYLLINE, PHENYLBUTAZONE, ASCORBIC ACID, NICOTINIC ACID, PHTHIVAZID, ANTIPYRINE, TERPIN HYDRATE, PHENACETIN, ACETYLSALICYLIC ACID, HEXAMETHYLENETETRAMINE, AMIDOPYRINE, AND CODEINE DID NOT INTERFERE WITH THE DETN. FACILITY: KAMENETS PODOL'SK. KONTO. ANAL. LAB., KAMENETS PODOLSKII, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--LEVELS OF ACID AND ALKALINE PHOSPHATASES IN LEUKOCYTES OF PERIPHERAL BLOOD OF HEALTHY MICE AND RATS -U-

AUTHOR-(02)-SHAMOV, I.A., SHAMOV, M.G.

S

COUNTRY OF INFO--USSR

SOURCE--LAB. DELO 1970, (3), 144-6

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ACID PHOSPHATASE, PHOSPHATASE, LEUKOCYTE, PERIPHERAL CIRCULATION, BLOOD, MOUSE, RAT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1795 STEP NO--UR/9099/70/000/003/0144/0146

CIRC ACCESSION NO--AP0127209

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127209

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DETNS. OF ALK. PHOSPHATASE BY THE KAPLOV METHOD AND ACID PHOSPHATASE BY THE GOLDBERG AND BARKA METHOD IN MICE AND IN RATS SHOWED NO ALK. PHOSPHATASE IN THE PERIPHERAL BLOOD. ACID PHOSPHATASE IN THE NEUTROPHILS AND LYMPHOCYTES WAS SEEN IN ONLY SOME MICE AND THEN PREDOMINANTLY AT THE I AND II DEGREE OF ACTIVITY, WITH III AND IV DEGREE ACTIVITY OF THE ENZYMES RARELY FOUND IN HEALTHY MICE. ACID PHOSPHATASE WAS OBSD. IN GREATER QUANTITIES IN CELLS OF RATS THAN OF MICE, AND FREQUENTLY AT THE III DEGREE OF ACTIVITY. FACILITY: DAGESTAN. MED. INST., MAKHACHKALA, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--LEVELS OF ACID AND ALKALINE PHOSPHATASES IN LEUKOCYTES OF PERIPHERAL BLOOD OF HEALTHY MICE AND RATS -U-

AUTHOR-(02)-SHAMOV, I.A., SHAMOV, M.G.

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COUNTRY OF INFO--USSR

SOURCE--LAB. DELO 1970, (3), 144-6

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ACID PHOSPHATASE, PHOSPHATASE, LEUKOCYTE, PERIPHERAL CIRCULATION, BLOOD, MOUSE, RAT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1795 STEP NO--UR/9099/70/000/003/0144/0146

CIRC ACCESSION NO--AP0127209

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127209

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DETNS. OF ALK. PHOSPHATASE BY THE KAPLOV METHOD AND ACID PHOSPHATASE BY THE GOLDBERG AND BARKA METHOD IN MICE AND IN RATS SHOWED NO ALK. PHOSPHATASE IN THE PERIPHERAL BLOOD. ACID PHOSPHATASE IN THE NEUTROPHILS AND LYMPHOCYTES WAS SEEN IN ONLY SOME MICE AND THEN PREDOMINANTLY AT THE I AND II DEGREE OF ACTIVITY, WITH III AND IV DEGREE ACTIVITY OF THE ENZYMES RARELY FOUND IN HEALTHY MICE. ACID PHOSPHATASE WAS OBSD. IN GREATER QUANTITIES IN CELLS OF RATS THAN OF MICE, AND FREQUENTLY AT THE III DEGREE OF ACTIVITY.

FACILITY: DAGESTAN. MED. INST., MAKHACHKALA, USSR.

UNCLASSIFIED

USSR

UDC 612.79.014.482

NORETS, T. A., IL'IN, L. A., and SHAMOV, V. N., Leningrad Scientific Research Institute of Radiation Hygiene, Ministry of Health RSFSR

"Absorbed Doses in the Skin and Changes Therein With Increasing Depth of Contamination by β and β-γ Emitters With Different Energies"

Moscow, Meditsinskaya Radiologiya, No 10, 1971, pp 48-54

Abstract: The purpose of the work was to: (a) calculate the absorbed doses at different depths of the skin created by β emitters with maximum energies (E_0) ranging from 0.16 to 3.0 MeV; (b) trace the relationship between the distribution of absorbed doses and E_0; (c) determine the degree of irradiation of various functional and morphological structures of the skin after contamination by β emitters. The levels of absorbed doses in the surface layers of the epidermis and extent of decrease with depth were found to vary with the energy of the β spectrum. The lower the energy, the sharper the decrease in the dose from layer to layer. β emitters with low energy of the β spectrum (i,e,, with $E_0 < 0.4$ MeV) affect mainly the layers of epidermis insensitive to radiation. The degree of irradiation of the basal layer varies considerably with the thickness of the epidermis and energy of the spectrum. β emitters

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NORETS, T. A., et al., Meditsinskaya Radiologiya, No 10, 1971, pp 48-54

with a maximum energy of about 0.5 to 1.5 MeV create high levels of radiation in all layers of the epidermis, the basal layer in particular. They act rather intensively on the functional and morphological structures located in the upper third of the derma, especially the superficial network of blood and lymph capillaries.

Nuclear Science and Technology

USSR

UDC: 621.039.58,68:539.6

DIBOBES, I. K., KNYAZEV, V. A., MOISEYEV, A. A., MOSKALEV, YU. I., SIVINTSEV, YU. V., TEVEROVSKIY, YE. N., TERMAN, A. V., and SHAMOV, V. P.

"Radiation Safety Standards (NRB-69)"

Moscow, Atomnaya energiya, Vol. 28, No 6, Jun 70, pp 463-467

Abstract: In August 1969 the Ministry of Health of the USSR approved the Radiation Safety Standards (NRB-69) developed by the National Commission on Radiation Protection. Recommendations of the International Commission of Radiological Protection served as the basis for the new standards. These standards set the basic permissible levels for ionizing radiation along with the permissible admission of radioactive isotopes into an organism. This includes three categories of people: Category A including service personnel, Category B including specific individuals in the population who live in areas where the permissible radiation doses may have been exceeded and where radiation conditions are checked, and Category C which includes the entire population with respect to estimating a genetically significant radiation dosage. The new standards are mandatory for the enterprises and establishments of all ministries and agencies using, applying, processing, transporting, storing, and burying radioactive substances and ionizing radiation sources. A short summary is given of the scientific basis which served as the framework for the new standards. The new standards are differentiated from the old. Tables are

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USSR

DIBOBES, I. K., et al., Atomnaya energiya, Vol 28, No 6, Jun 70, pp 463-467

given showing permissible somatic and genetic doses. Permissible surface contamination levels are also given.

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USSR

UDC 517.54

SHAMOYAN, F. A., Institute of Mathematics, Academy of Sciencss Armenian SSR

"Construction of a Special Sequence, and the Structure of Closed Ideals in Certain Algebras of Analytic Functions"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR, Vol 7, No 6, 1972, pp 440-470

Abstract: Let U be an open unit circle, Γ its boundary, A a set of functions analytic in U and continuous in $U \cup \Gamma$. It is assumed that E is a closed set on Γ and n is a natural number. The article deals with the construction of the sequence $\{\varphi_s\}$ with the properties

1°. $\varphi_s^{(n)} \in A$, $s = 1, 2, 3, \ldots$

2°. $\varphi_s^{(k)}(\zeta) = 0$ for $\zeta \in E$, $k = 0, 1, \ldots, n$, $s = 1, 2, \ldots$

3°. $|\varphi_s^{(k)}(z)| \leq \frac{C^s}{[\rho(z, E)]^k}$, $k = 0, 1, \ldots, n$, $s = 1, 2, \ldots$, $z \in U \setminus E$.

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USSR

SHAMOYAN, F. A., Izvestiya Akademii Nauk Armyanskoy SSR, Vol 7, No 6, 1972, pp 440-470

$$4^\circ.\ \lim_{s\to\infty}\varphi_s(\zeta)=1,\ \lim_{s\to\infty}\varphi_s^{(j)}(\zeta)=0,\ j=1,2,\cdots,n$$

and uniform with respect to ζ from any compact set

$$K\subset U\cup\Gamma,\ K\cap E=\varnothing.$$

The sequence $\{\varphi_s\}$ is constructed subject to a certain limit on the rate of decrease of complementary intervals of the set E. The need to construct the sequence $\{\varphi_s\}$ with properties (1)-(4) arises in the study of multiplicative properties of some classes of analytic functions and in the

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USSR

SHAMOYAN, F. A., Izvestiya Akademii Nauk Armyanskoy SSR, Vol 7, No 6, 1972, pp 440-470

description of closed ideals in the algebras of functions analytic in a circle and smooth up to the unit circle. An article by B. A. TAYLOR and D. L. WILLIAMS raises the question of the existence of the sequence $\{\varphi_s\}_{s=1}^{\infty}$ with properties (1)-(4), provided that the set E satisfies the Beurling-Carleson condition.

The sequence $\{\varphi_s\}_{s=1}^{\infty}$ is used by the author to obtain a complete description of the closed ideals in certain algebras of analytic functions. A theorem is formulated to describe closed ideals for which the complementary intervals of the set E_n (I) satisfy certain constraints.

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Nickel

USSR

UDC 669.24.492

BONDARENKO, B. I., PEKACH, V. F., SHAMPO, E. A., VYAZ'MIN, O. A., YEVLANOV, S. F., and GOLGER, S. P.

"Fluidization of Industrial Nickel Powder"

Moscow, Tsvetnyye Metally, No 5, May 70, p 24

Abstract: The results of an experimental determination of the fluidization onset rate of nickel powder containing 5-6% Cu and 3% Fe, with 2010 kg/l bulk density and apparent weight of 5.36 kg/l, for various powder fractions are presented in tabular form, together with data on Reynolds (Re) and Fedorov numbers calculated for each test condition. An equation for determining the first critical rate of fluidization onset is derived on the basis of experimental data.

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SHAMRAY, A. YE., KOVAL', A. I.

"Change in Concentration of Nucleic Acids in the Bone Marrow of Animals With Acute Radiation Sickness Under the Effect of Homotransplantation of Bone Marrow"

Gematol. i perelivaniye krovi. Resp. mezhved. sb. (Hematology and Blood Transfusion. Republic Interdepartmental Collection), 1971, No 6, pp 83-87 (from RZh-Biologicheskaya Khimiya, No 21, Nov 71, Abstract No 21F1357)

Abstract: The concentration of nucleic acids, especially DNA, decreases in the bone marrow of rats after they are exposed to x-ray irradiation (800-850 roentgens). After homotransplantation of bone marrow, the concentration of nucleic acids in the bone marrow tissue increases. The amount of RNA 20-30 days after the transplant is somewhat greater than that in the control animals. Resume.

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USSR UDC 616.728.2/.3-002.5-089.843-032:611.018.46

SHAKRAY, A. YE., Kiev Scientific Research Institute of Hematology and Blood Transfusion, Kiev

"Effect of the Homotransplantation of Bone Marrow on Inclusion of P^{32} Into Cellular Proteins of the Liver, Spleen, and Bone Marrow in Acute Radiation Sickness"

Kiev, Vrachebnoye Delo, No 5, May 71, pp 127-129

Abstract: Rats were irradiated with x-rays in a dose of 800-850 r. Twenty four hours later, homotransplantation of bone marrow was carried out by intravenous injection of 2.6-3.9 x 10^7 myeloid cells. The bone marrow was derived from donor rats. On the 4 th, 8 th, 13 th, 20 th, and 30 th days after irradiation, P^{32} in the amount of 0.5 microcuries/g was administered intravenously. Thirty minutes later the animals were sacrificed and the radioactivity of proteins of the liver, spleen, and bone marrow was determined. The inclusion of P^{32} in rats that had been irradiated, but did not receive a transplantation of bone marrow, was determined similarly on the 4 th, 8 th, and 13th days after irradiation. Later determinations were not carried out, because animals of this group died on the 12-13 th day. The animals not treated

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SHAMRAY, A. YE., Vrachebnoye Delo, No 5, May 71, pp 127-129

with bone marrow showed a strong increase, vs. non-irradiated controls, in the inclusion of P^{32} into the proteins of the liver, spleen, and bone marrow on the 4 th day after irradiation, followed by a strong decrease below normal on the 8-13 th day. This was presumably due to partial protein starvation and endogenous protein nutrition in the early stage of radiation sickness, followed by depletion of protein reserves and predominance of protein decomposition over synthesis in the organs studied. Irradiated rats that had received a bone marrow transplantation showed a decrease below normal of P^{32} inclusion into the proteins of the organs studied on the 4th day, followed by a return to normal on the 8-13 th day, an increase above normal on the 20 th day, and a return to normal on the 30 th day.

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USSR

UDC 617-001.28-036.11-036.8:616.411-07

KOVAL', A. I., SHAMRAY, A. Ye., and RUBAN, V. I., Scientific Research Institute of Hematology and Blood Transfusion, and Laboratory of Histochemistry and Electron Microscopy, Institute of Otorhinolaryngology, Kiev

"Effect of Transplantation of Homologous Bone Marrow on the Nucleic Acid Content of the Spleen During Acute Radiation Sickness"

Kiev, Vrachebnoye Delo, No 9, Sep 70, pp 103-107

Abstract: Rats were exposed to lethal doses of X-rays (800 to 850 r) and, 24 hours later, received homologous bone marrow transplants intravenously. Both the RNA and, in particular, the DNA content of the spleen decreased sharply after irradiation. Restoration began on the 8th day, by the 30th day, both nucleic acids were at normal levels. All of the control animals (which did not receive the bone marrow transplants) likewise exhibited a marked decrease in the nucleic acids, especially by the 4th day, a slight increase until the 8th day, and then a steady decrease until the 12th or 13th day, when they died.

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UDC 576.311/.34:612.014.482]:612.35-092.9

MALOVICHKO, I. I. and SHAMRAY, A. Ye., Chair of Biochemistry, Kiev Medical Institute

"Relationship Between Oxidative Phosphorylation in the Mitochondria of Liver Cells in Rats Irradiated With 800 r and the Time of Homotransplantation of Bone Marrow"

Kiev, Vrachebnoye Delo, No 4, 1970, pp 148-149

Abstract: Experiments confirmed the view of those investigators who believe that homotransplantation of bone marrow 24 hours after irradiation produces a better therapeutic effect than when the procedure is carried out at later times. Oxidative phosphorylation of mitochondria, a process that maintains the energy balance of the cell, was used as an indicator of the effectiveness of the transplants. Studies on white rats given bone marrow transplants 24 hours, 3 and 6 days after irradiation showed that respiration and phosphorylation in liver cell mitochondria were more intense 24 hours after irradiation than at either of the other two periods.

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1/2 032 UNCLASSIFIED

TITLE--DEPENDENCE OF OXIDATIVE PHOSPHORILATION OF HEPATIC CELL MITOCHONDRIA IRRADIATED WITH 800 R ON TIMING OF ADMINISTRATION OF BONE

PROCESSING DATE--13NOV70

AUTHOR-(02)-MALOVICHKO, I.I., SHAMRAY, A.YE.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 148-149

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HOMOTRANSPLANTATION, RAT, MITOCHONDRION, LIVER, PHOSPHORYLATION, HEMATOPOIESIS, BONE MARROW, IRRADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1690

STEP NO--UR/0475/70/000/004/0148/0149

CIRC ACCESSION NO--AP0129060

UNCLASSIFIED

2/2 032 UNCLASSIFIED

CIRC ACCESSION NO--AP0129060 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT WAS FOUND THAT OF THE THREE TERMS (24 HOURS, 3 AND 6 DAYS) HOMOTRANSPLANTATION OF HEMOPOIETIC CELLS 24 HOURS FOLLOWING IRRADIATION EXERTED THE MOST FAVOURABLE EFFECT ON THE RESPIRATORY AND PHOSPHORILATING FUNCTION OF HEPATIC MITOCHONDRIA IN RATS.

FACILITY: KIYEVSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

UDC: 612.26:611-018.46:612.014.482-092.9

USSR

MALOVICHKO, I.I., SHAMRAY, A.YE., Chair of Biochemistry, Kiev Medical Institute

"Respiration and Oxidative Phosphorylation of Bone Marrow Tissue of Irradiated Rabbits After Homotransplantation of Bone Marrow Elements"

Kiev, Vracheboye Delo, No 3, 1970, pp 132-135

Abstract: Three groups of rabbits were used in this study: (a) controls, (b) rabbits irradiated with 1200-1250 r., and (c) rabbits irradiated and treated with bone-marrow transplants. In group (b) phosphorylation was reduced to 83% of normal on the third day, and to 69% of normal on the seventh day after irradiation. All animals died 8-12 days after irradiation. Group (c), studied 7, 13, 20 and 30 days, and 2 and 5 months after irradiation, showed continual progressive increase in oxidative phosphorylation, from 64.8% to 90% of normal. It was concluded that the stimulating effect of transplated bone marrow is connected with the introduction into the organism of nucleoprotein complexes, with the nuclei of donor cells, and with the hematological condition of the animal.

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1/2 037 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--OXIDATIVE PHOSPHORILATION OF BONE MARROW HEMOGENATES OF IRRADIATED RABBITS FOLLOWING HOMOTRANSPLANTATION OF BONE MARROW TISSUE -U-
AUTHOR--MALOVICHKO, I.I., SHAMRAY, A.YE.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 3, PP 132-135

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PHOSPHORYLATION, RABBIT, BONE MARROW, HOMOTRANSPLANTATION, METABOLISM, RESPIRATION, RADIATION BIOLOGIC EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0650 STEP NO--UR/0475/70/000/003/0132/0135

CIRC ACCESSION NO--AP0102636

UNCLASSIFIED

2/2 037 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102636

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT HAS BEEN STUDIED OF HOMOTRANSPLANTATION OF BONE MARROW TO LETHALLY IRRADIATED ANIMALS ON THE STATE ON SOME SIDES OF THE ENERGETIC METABOLISM. RESULTS INDICATE THAT HOMOTRANSPLANTATION OF BONE MARROW HAD A DISTINCT FAVOURABLE EFFECT ON RESPIRATION AND OXIDATIVE PHOSPHORILATION OF THE BONE MARROW TISSUE IN RABBITS RECEIVING 1250 R.

UNCLASSIFIED

USSR UDC 578.089.843:616-001.28

VORONKOVA, N. A., and SHAMRAY, A. E., Kiev Scientific Research Institute of Roentgenradiology and Oncology; Kiev Scientific Research Institute of Hematology and Blood Transfusion

"Effect of Bone Marrow Homotransplantation on the Intensity of the Pentose Phisphate Cycle Reaction and the Lifetime of Erythrocytes in Animals With Acute Radiation Sickness"

Kiev, Ukrayins'kyy Biokhimichnyy Zhurnal, Vol 43, No 6, Nov/Dec 71, pp 738-741

Abstract: Rabbits and rats were used to determine the effect of ionizing radiation with subsequent bone marrow homotransplantation on the half-life of erythrocytes and the pentose phosphate cycle reaction in the erythrocytes. Acute radiation sickness was induced in the rabbits by x-ray irradiation with doses of 1110-1250 rads, and in the rats, 800-850. Bone marrow homotransplantation in both instances was carried out intraosseously 24 hours after irradiation with quantities of $3.2\text{-}3.5 \cdot 10^8$ cells for the rabbits, and $2.6\text{-}3.4 \cdot 10^7$ for the rats. The half-life of erythrocytes was determined by the Gray-Storling method in Karavanov's modification. The effect on the pentose phosphate cycle reaction -- by the Brin-Yonemoto method. The experiments established that ionizing radiation reduces the half-life of erythrocytes and 1/2

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VORONKOVA, N. A., and SHAMRAY, A. E., Ukrayins'kyy Biokhimichnyy Zhurnal, Vol 43, No 6, Nov/Dec 71, pp 738-741

disturbs the pentose phosphate cycle reaction. Under the influence of bone marrow transplantation, however, improvement of the metabolic processes is already noted on the third day, and within one week the half-life of the erythrocytes is restored to its normal level. It is assumed that the disturbance of the pentose phosphate cycle reaction is one of the reasons of the intensive destruction of erythrocytes by ionizing radiation.

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USSR UDC: 621.317.335

BABKIN, V. V., SHAMRAY, B. V.

"An Adaptive Method for Automatic Measurement of the Temperature Coefficient of Capacitance"

Elektron. tekhnika. Nauchno-tekhn. sb. tekhnol. i organiz. proiz-va (Electronic Technology. Scientific and Technical Collection. Technology and Organization of Production), 1970, vyp. 3(35), pp 44-49 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A374)

Translation: The authors substantiate the feasibility of using a frequency--time method of measuring the temperature coefficient of capacitance of capacitors under conditions of adaptation to the initial capacitance. A circuit is described which can be used to measure the temperature coefficient of capacitance of capacitors with high precision over a range of 1-10,000 pF. Resumé.

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1/2 023 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--ON MECHANISM OF INTERACTION OF VITAMINS C, P (POLYPHENOLS OF PLANTS) AND B SUB1 -U-

AUTHOR--SHAMRAY, E.F.

COUNTRY OF INFO--USSR

SOURCE--UKRAYNS'KIY BIOKHIMICHNIY ZHURNAL, 1970, VOL 42, NR 2, PP 265-269

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VITAMIN C, PLANT PHYSIOLOGY, ASCORBIC ACID, ENZYME, KIDNEY, LIPID METABOLISM, POLYPHENYL ETHER, CEREAL CROP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1675 STEP NO--UR/0300/70/042/002/0265/0269

CIRC ACCESSION NO--AP0106421

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106421

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERE EXISTS CHEMICALINTERACTION AND FUNCTIONAL INTERRELATION BETWEEN VITAMINS C AND P. ASCORBIC ACID AND POLYPHENOL OF PLANTS FORM A COMPLEX COMPOUND UNDER DEFINITE CONDITIONS. THE ENZYMIC SYSTEMS OXIDATING ASCORBIC ACID AND ITS DEHYDROFROM WITH THE PRESENCE OF POLYPHENOLS EXIST IN ANIMAL ORGANISM. THIS PROCESS OCCURS MAINLY IN KIDNEYS AND IR REVERSIBLE. DEHYDROASCORBIC ACID IS A TRANSPORT FORM OF VITAMIN C. IT PASSES EASILY THROUGH THE BIOLOGICAL MEMBRANES. POLYPHENOLS, ISOLATED FROM OAT, AFFECT METABOLISM OF LIPIDS, INCREASE THE WORKING CAPACITY OF MUCLES AND RESULT IN RISE OF ORGANISM ENDURANCE WITH PHYSICAL LOADINGS.

UNCLASSIFIED

USSR

UDC 669.275'295'782

MAKSIMOV, V. A., and SHAMRAY, F. I., Moscow

"Phase Diagram of the System W-Ti-Si"

Moscow, Izvestiya Akademii Nauk SSR, Metally, No 1, Jan-Feb 1970, pp 197-201

Abstract: A study was made of the system W-Ti-Si by thermal, microstructural, x-ray, and phase analysis and hardness and microhardness measurements. The binary phase diagrams of systems Ti-Si and W-Si were investigated. It was verified that compound Ti_3Si is formed in the system Ti-Si at 1170°C after peritectoid reaction, and in the system W-Si, silicide W_5Si_3 melts congruently at a temperature ~ 2330° C. The quasi-binary sections W_5Si_3-Ti_5Si_3, WSi_2-$TiSi_2$, and W-Ti_5Si_3, the surface liquidus, and isothermal sections of the system W-Ti-Si at 800, 1000 and 1200° C are shown.

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USSR

UDC 620.17:669.295'27'78

MAKSIMOV, V. A. and SHAMRAY, F. I.

"Properties of Titanium Alloys with Tungsten and Silicon"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1970, pp 69-70

Abstract: An investigation was made of certain properties of alloys within the limits of ternary α - and β-solid solutions. The physical properties of some alloys are tabulated, and microstructural photographs of titanium alloys with tungsten and silicon are presented for various heat treatments. It is concluded that the introduction of tungsten and silicon into the α-solid solution of titanium increases the strength by 10-20 kg/mm^2 while preserving high plasticity. When hardening the alloys from the β-solid solution region, a metastable α'-phase is formed. With an increase in tungsten content to 4.8% the strength of the alloys increases sharply and reaches 93 kg/mm^2. Alloys hardened from the two-phase α + β region have lower strength than those hardened from the β-region; however, their plasticity is higher.

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1/2 040 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--PROPERTIES OF TITANIUM ALLOYS WITH TUNGSTEN AND SILICON -U-

AUTHOR-(02)-MAKSIMOV, V.A., SHAMRAY, F.I.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (2), 69-70

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--TITANIUM ALLOY, TUNGSTEN CONTAINING ALLOY, SILICON CONTAINING ALLOY, METAL MELTING, METAL ROLLING, HELIUM, TENSILE STRENGTH, PLASTICITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1286 STEP NO--UR/0129/70/000/002/0069/0070

CIRC ACCESSION NO--AP0106067

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--02OCT70

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CIRC ACCESSION NO--AP0106067

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALLOYS (4) CONTG. TI 99.47, 99.44, 97.97, AND 94.75; W 0.35, 0.5, 2.0, 4.8; AND SI 0.18, 0.06, 0.03, AND 0.45PERCENT (I, II, III, AND IV, RESP.) WERE MELTED IN AN ARC FURNACE WITH NONCONSUMABLE ELECTRODE IN HE. PARTS OF THE INGOTS WERE ROLLED AT 800DEGREES AND OTHERS WERE FORGED AT 800DEGREES WITH 50-60PERCENT DEFORMATION. THE SPECIMENS WERE CUT FROM RODS AND SHEETS AND ANNEALED AT 1000DEGREES-25 HR PLUS 800DEGREES-105 HR, AND QUENCHED IN WATER FROM 1000 OR 800DEGREES. SOME OF THEM WERE ADDNL. ANNEALED AT 800-50 PLUS 600DEGREES-100 HR AND QUENCHED FROM 600DEGREES. THE RESULTS SHOWED THAT ALLOYING OF TI WITH W AND SI MARKEDLY INCREASES ITS STRENGTH. AT QUENCHING OF THE ALLOYS FROM THE BETA REGION (1000DEGREES) THE METASTABLE ALPHA PRIME PHASE IS FORMED AND THE STRENGTH INCREASES (THE MAX. VALUE OF TENSILE STRENGTH, SIGMA UPSILON, OBTAINED WAS 99 KG-MM PRIME2 FOR THE SHEET SPECIMEN OF ALLOY IV QUENCHED FROM 1000DEGREES), BUT THE PLASTICITY IS LESS (ELONGATION, DELTA, 3.7PERCENT FOR THE SAME SPECIMEN). THE QUENCHING FROM THE (ALPHA PLUS BETA) REGION (1000DEGREES) ALSO SIGNIFICANTLY IMPROVES STRENGTH (ALTHOUGH TO LESS DEGREE) BUT THE RELATIVELY HIGH PLASTICITY IS CONSERVED. GENERALLY, THE SPECIMENS CUT FROM SHEETS SHOWED SOMEWHAT LESS PLASTICITY THAN THOSE FROM RODS, OWING TO THEIR GREATER OXIDN. IN THE ROLLING PROCESS.

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Acc. Nr: AP0050467 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR 0370

93769g Phase diagram of a tungsten-titanium-silicon system. Maksimov, V. A.; Shamray, F. I. (USSR). *Izv. Akad. Nauk SSSR, Metal.* 1970, (1), 197–201 (Russ). The systems were studied by thermal, x-ray, and microstructural methods. The sections studied were W_5Si_3–Ti_5Si_3, WSi_2–$TiSi_2$, (W:Si = 1:1)–TiSi, Si–(W:Ti = 1:3, 1:1, 3:1), W–Ti_5Si_3, W–$TiSi_2$, Ti–W_5Si_3, Ti–WSi_2. In Ti–Si, the compd. Ti_3Si is formed by a peritectoid reaction at 1170°. The compd. Ti_5Si_3 m. 2290°, not at 2120° as indicated in literature. In the W–Si system the compd. W_5Si_3 melts congruently at 2330°, the eutectic (W) + W_5Si_3 contains 31.5 atom % Si and m. 2180°. In the W–Ti–Si system the section W_5Si_3–Ti_5Si_3 is of the quasibinary eutectic type. The eutectic (W_5Si_3) + (Ti_5Si_4) is at 2000° and a Ti_5Si_3 content of 56 mole %. In the WSi_2–$TiSi_2$ the initial components practically do not form solid solns. At a $TiSi_2$ content of 60 mole% at 1680° the ternary compd. $W_2Ti_3Si_{10}$ is formed. At 800 and 1000° the solid soln. has a region of homogeneity of ≦77 mole%. $TiSi_2$. The section W–Ti_5Si_4 is of the quasibinary eutectic type. The eutectic W + Ti_5Si_3 is formed at 2135° and 70 mole% Ti_5Si_3. The surface of the liquidus of the W–Ti–Si system consists of 9 fields of primary crystn. of the solid solns. of W, Si, Ti, and chem. compds. The isothermal section of W–Ti–Si at 800° shows that

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in $W_2Ti_3Si_{10}$ addnl. W and Ti are dissolved. Si is nearly not dissolved in it. The section at 1000° has the same structure as at 800°. In the section at 1200° the section $W-W_5Si_3-Ti_5Si_3-Ti$ is divided into $W-W_5Si_3-Ti_5Si_3$ and $W-Ti_5Si_3-Ti$. L. Holl

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UDC 577.1:615.7/9

SHAMRAY, P. F.

"Effect of Polychloropinene on the Process of Healing of Experimental Wounds"

V sb. Gigiyena primeneniya, toksikol. pestitsidov i klinika otravl. (Pesticides -- Safety Measures in Using, Toxicology, and the Poison Clinic -- collection of works), vyp. 9, Kiev, 1971, pp 133-137 (from RZh-Biologicheskaya Khimiya, No 9, May 1972, Abstract No 9F2261)

Translation: A water emulsion of polychloropinene was administered daily through an abdominal probe to rats in an amount of 0.1 LD_{50}, i.e. 35 mg/kg of the active substance, for a period of one and three months. At the end of these periods, a single wound was inflicted on the back of each rat and the healing process was observed for one month. Complete healing of the control animals took place on the 12-19th day, in the sub-chronic animals on the 19-20th day, and in the chronic animals on the 22-27th day. The amount of glycogen in the granulation tissue of the wounds in rats poisoned by polychloropinene was greater during the entire healing period than in the control animals. The activity of succinate dehydrogenase in the regenerated cells of the poisoned animals was lower than in the control.
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USSR

UDC 620.194.8:678.5.06 - 419.8

CHERVATYUK, V. F., KOSTENKO, A. YE., NAKONECHNAYA, A. A., PLYSYUK, A. K., SHAMRAY, P. YA., and YAZON, Z. P., Severodonetsk

"Study of the Corrosive Resistance and Atmospheric Stability of Fiberglass Produced From the Composition 311 TKhS"

Kiev, Khimicheskaya Tekhnologiya, No 2 (62), Mar-Apr 72, pp 22-23

Abstract: Fiberglass material studied was resistant to hydrochloric acid, dilute and concentrated acetic and formic acids, acetic anhydride, aniline, trichlorobenzene, toluene, and gasseous Cl_2, HCl, and SO_3. Prolonged usage of this material shows considerable wear due to the action of light, temperature and moisture. With aging the firmness of the plastic deteriorates at an increasing rate. The laboratory results were fully corroborated by experiments carried out in the field.

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UDC 577.391:612.014.461

SHAMRAY, Ye. F., and SOKOLOVA, V. I., Chair of Biochemistry, Kiev Medical Institute

"The Effect of Sublethal and Lethal Radiation Doses on Extracellular and Intracellular Distribution of Water in Certain Rat Tissues"

Kiev, Ukrainskiy Biokhimicheski, Zhurnal, Vol 42, No 4, 1970, pp 494-498

Abstract: Ionizing radiation was found to lower the total water content in the brain, liver, kidneys, and skeletal muscles of rats. A lethal dose (900 R) had a more pronounced effect on dehydration than a sublethal dose (600 R). The decrease in total water content of the tissues was accompanied by an increase in the volume of plasma and extracellular fluid. Shifts in water distribution between the cell and its environment were more pronounced with lethal radiation. Irregularities in water balance between the cell and its environment occur prior to shifts in total water content and are more regular and distinct. Irregularities in water distribution may be due to irregularities in electrolyte distribution, since the exchange of sodium between the cells and the surrounding medium occurs prior to any shifts in total sodium content. Accumulation of excess sodium in the extracellular space may lead to a transfer of water from the cells into the extracellular region.

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1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--BIOCHEMICAL BASIS OF ATHEROSCLEROSIS PROPHYLAXIS -U-

AUTHOR--SHAMRAY, YE.F.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 42-46

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROPHYLAXIS, DIET, ATHEROSCLEROSIS, VITAMIN, LIPID METABOLISM, CHOLESTEROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0112 STEP NO--UR/0475/70/000/004/0042/0046

CIRC ACCESSION NO--AP0129368

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--30OCT7C

CIRC ACCESSION NO--AP0129368

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RATIONAL DIET OCCUPIES ONE OF MAIN PLACES IN THEPROPHYLAXIS OF ATHEROSCLEROSIS. THERE IS NOT JUSTIFICATION IN QUALITATIVE CHANGES OF THE FOOD BUT ITS QUANTITATIVE SIDE SHOULD BE STRICTLY CONTROLED FOR EFFICIENT PHOPHYLAXIS OF ATHEROSCLEROSIS. IT SHOULD CORRESPOND TO THE ENERGETIC BALANCE. VITAMINS P AND C FAVOUR METABOLISM OF LIPIDS, REDUCE THE TISSUE AND BLOOD CHOLESTEROL, I. E. POSSESS ANTISCLEROTIC ACTION.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--INFLUENCE OF THE OAT POLYPHENOLS ON THE FAT METABOLISM -U-

AUTHOR-(02)-SHAMRAY, YE. F., STREYEVAYA, L.N.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY PITANIYA, 1970, NR 2, PP 51-54

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIPID METABOLISM, FAT, BLOOD SERUM, CHOLESTEROL, LIPOPROTEIN, CEREAL CROP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1639 STEP NO--UR/0244/70/000/002/0051/0054

CIRC ACCESSION NO--AP0101694

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0101694

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BIOLOGICAL ACTION OF O PREPARATION MADE UP OF POLYPHENOLS SEPARATED FROM THE OAT STRAW WAS ANALYZED. THE DRUG UNDER STUDY DISPLAYS A MARKED LIPOTROPIC EFFECT, PREVENTS DEPOSITION OF FAT IN THE ORGANS AND TISSUES OF EXPERIMENTAL ANIMALS. IT ALSO LOWERS THE BLOOD SERUM CHOLESTEROL AND BETA LIPOPROTEIDS LEVEL, BOTH IN ORDINARY CONDITIONS AND AGAINST THE BACKGROUND OF EXPERIMENTAL HYPERCHOLESTERENEMIA.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SYNTHESIS AND STUDIES OF SOME POLYAMINO ACIDS -U-

AUTHOR-(03)-BERLIN, A.A., LIOGONKIY, B.I., SHAMRAYEV, G.N.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 938-47

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--ORGANIC SYNTHESIS, POLYCONDENSATION, NAPHTHALENE, CARBOXYLIC ACID, ANHYDRIDE, AMINE, BENZENE DERIVATIVE, POLYAMIDE COMPOUND, PLASTIC FILM, HETEROCYCLIC NITROGEN COMPOUND, POLYNUCLEAR HYDROCARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1494 STEP NO--UR/0459/70/012/004/0938/0947

CIRC ACCESSION NO--AP0135155

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135155

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLYCONDENSATION OF 1,4,5,8,NAPHTHALENETETRACARBOXYLIC ACID DIANHYDRIDE (I) WITH 3,3 PRIME,DIAMINOBENZIDENE, 3,3 PRIME, 4,4 PRIME TETRAAMINODIPHENYLMETHANE, OR 3,3 PRIME, 4, 4 PRIME,TETRAAMINODIPHENYL ETHER IN APROTIC SOLVENTS GAVE THE CORRESPONDING POLYAMIDES. THE HIGHEST VISCOSITY OF THE REACTION MIXT. WAS OBTAINED WHEN 1-2PERCENT I EXCESS WAS USED TO MAKE UP FOR I HYDROLYZED TO THE TETRACARBOXYLIC ACID. THE EVAPN. OF THE SOLNS. GAVE POLYAMIDE FILMS, WHICH ON HEATING IN VACUO 2 HR AT 300DEGREES GAVE II (R IS ABSENT, O, OR CH SUB2). FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 070 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--THERMAL TRANSFORMATIONS OF SOME AROMATIC POLYAMIDO AND POLYAMINOAMIDO ACIDS -U-

AUTHOR-(04)-SHAMRAYEV, G.M., DULOV, A.A., LIOGONKIY, B.I., BERLIN, A.A.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(2), 401-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--PYROLYSIS, POLYMER, BENZIMIDAZOLE, IR SPECTRUM, EPR SPECTRUM, X RAY DIFFRACTION, ELECTRON MICROSCOPY, CONJUGATED POLYMER, THERMAL DEGRADATION, HIGH TEMPERATURE MATERIAL, HETEROCYCLIC NITROGEN COMPOUND, POLYNUCLEAR HYDROCARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0763 STEP NO--UR/0459/70/012/002/0401/0408

CIRC ACCESSION NO--AP0111955

UNCLASSIFIED

2/2 070 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0111955

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF PYROLYSIS TEMP. WAS STUDIED ON I (R IS A DIRECT BOND, O, CH SUB2, OR POLY(NAPHTHOYLENEBISBENZIMIDAZOLE)) OR II (R IS A DIRECT BOND OR O), THE PREPN. OF WHICH WAS REPORTED BY A. A. BERLIN, ET AL. (1966-8). IR SPECTROSCOPY, X RAY DIFFRACTION, ELECTRON MICROSCOPY, AND EPR SPECTROSCOPY WERE USED TO ESTABLISH THAT THE ORDERING OF I OR II PROCEEDS AT SMALLER THAN OR EQUAL TO 400DEGREES. THIS IS DUE TO FORMATION OF THE CONJUGATED HETEROCYCLIC POLYMERS, SUCH AS III OR IV. AT 500DEGREES AND SMALLER THAN OR EQUAL TO 800DEGREES, THE STRUCTURE ORDERING OF III AND IV DECREASES OWING TO THERMAL DEGRADATION.

FACILITY: INST. KHIM. FIX., MOSCOW, USSR.

UNCLASSIFIED

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UDC 576.851.555.097.2.083.3

SHAMRAYEVA, S. A., ZEMLYANITSKAYA, Ye. P., and MATVEYEV, K. I., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR

"Study of Soluble Antigens of Cl. perfringens Types D and E in Tissue Cultures"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, 1971, pp 58-63

Abstract: The effect of activated Σ toxin of Cl. perfringens type D on animals and in 11 tissue cultures (KB, PH, HK, HeLa, HEp-2, and others was studied and an attempt was made to determine whether the tissue cultures can be used to identify strains of Cl. perfringens type E. Activated Cl. perfringens type D toxin caused necrotic changes in the skin of mice and guinea pigs, but was nontoxic with respect to the 11 types of tissue cultures investigated. The heteroploid cell lines HK, KB, PH, HeLa, and HEp-2 could be used to identify Cl. perfringens type E strains in the reaction of neutralization of soluble type E antigens with dry type E antitoxic diagnostic serum. Cl. perfringens type E toxin killed the experimental mice and produced cytotoxic changes in the KB, PH, HeLa, and HEp-2 tissue cultures.

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UDC 57.085.23:576.851.55.097.29

YERMAKOVA, M. P., SHAMRAYEVA, S. A., ZEMLYANITSKAYA, Ye. P., and VLASOVA, Ye. V., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR

"Morphological and Histochemical Changes Produced by Clostridium sordelli and Clostridium oedematiens Toxins in Cultures of Fibroblasts, Kidney Epithelium, and Macrophages"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1971, pp 23-28

Abstract: C. sordelli and C. oedematiens toxins had a marked cytotoxic effect on cultures of chick fibroblasts, transplanted human fetal kidney epithelium, and macrophages from a guinea pig peritoneal exudate. C. sordelli toxin caused vacuolar degeneration of the cytoplasm, while C. oedematiens toxin produced karyorrhexis, karyopyknosis, karyolysis, karyorrhexis, and marked fatty degeneration of the cytoplasm. Histochemical analysis showed that both toxins intensified acid phosphatase activity in the cytoplasm of the fibroblasts and macrophages, decreased the RNA content of the kidney epithelial cells, and stimulated the formation of lumps of glycogen. The cytotoxic effect was not manifested when the various cultures

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YERMAKOVA, M. P., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1971, pp 23-28

were grown on a nutrient medium containing a mixture of one of the toxins and the corresponding antitoxic serum. A comparative morphological and histochemical study of the effect of C. sordelli and C. oedematiens exotoxins on sensitive cultures revealed sharp changes in cell structure, lipid content, and acid phosphatase activity characteristic of the particular toxin.

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